

VI. Primipara with no symptoms, no clinical or laboratory evidence of lues or nephritis, but gradually increasing blood pressure to 165. No albumen, edema or other evidence of toxemia. Labor at term, after cessation of all movement, with still-born child. Mouth a mass of pyorrhea alveolaris; blood pressure remains constantly high 3 months after delivery, while pyorrhea and abscesses are treated.

VII. II-para. Eclampsia and loss of child at term. Never any mouth symptoms but a very large abscess removed during the fourth month of this pregnancy. Now looks and feels better than ever, and is apparently perfectly normal at the 6th month.

VIII. II-para. Hyperemesis. Corpus luteum by hypo and all other treatment ineffective in overcoming nausea which continued till an abscess was opened and drained at the 5th month, when there was prompt improvement.

I am now investigating the cases of hyperemesis, preeclamptic toxemia and eclampsia on my books and so far have not found one without definite dental trouble except one case of pernicious vomiting seen in consultation with Dr. Clarence Page, where X-rays were negative. Dr. Edith Brownsill of Berkeley has kindly investigated 6 of her cases and 5 of the six have definite evidence of dental sepsis. Dr. Anderson, neurologist, of Oakland, reports to me two carefully worked out cases of post-partum insanity, relieved by the removal of abscesses, recovery occurring almost over night; plain cases of toxic psychoses wherein not the strain of pregnancy but the strain of chronic sepsis was the fundamental cause, the pregnancy being the minor factor.

So much for evidence—not all conclusive but so highly suggestive that I think we must pay attention to it. I have reached the point where every new patient of mine who has any devitalized teeth must have an X-ray of them or get another doctor. And to my surprise, I am finding not opposition, but co-operation. In fact I find that many dentists are in as great need of education as are the patients, and are less willing to learn. I have learned that the dentist who advises against X-rays because he knows "those teeth are all right" is unsafe and wrong. No one knows that a devitalized tooth is right in the absence of proof, and we are learning that the presumption is the other way. The best men in dentistry are frankly troubled and distressed about their future. They are as reluctant to extract apparently sound teeth as are their patients to have them, but there is growing the conviction that treatment (filling root canals to save or crown a tooth) is not only futile but a menace.

In the presence of definite abscesses I have advised extraction in every month of pregnancy up to the 9th under local or general anesthesia and have not yet had an acute increase of symptoms nor a threatened termination of pregnancy. I think the occasional reports of trouble are due to vigorous curettings, which of course make trouble and should be avoided. If I am asked,

as I always am, if there is any danger in having this tooth out now, I think I am now justified in saying (with an undoubted abscess present) that there is less danger in having it out than having it in.

I am not carried away with my subject. I do not believe that a dental abscess is necessarily the cause of a toxemia just because it is present. I do not know how many patients who go through perfectly normal pregnancies have mouth infections but the number must be large. I do know that so far I have found but one toxic patient (Dr. Page's) who did not have one or more infections, and Talbot of Massachusetts reports that in 97 consecutive cases of toxemia, every one without exception showed chronic dental sepsis.

We have for years told our patients to keep their teeth clean during pregnancy, and to be examined by their dentists—that is to keep the tops of their teeth cleaned, to avoid caries. And now, until I am otherwise persuaded, I believe we must go further and see that the hidden dangers at the other ends of the teeth are brought to light.

PATHOLOGIC INDICATIONS FOR CHOLECYSTECTOMY.*

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A singular divergence of opinion amongst surgeons of large experience continues to appear on the indications for cholecystectomy. If one were to venture to find a reason for this confusion it would probably be seen in a too broad generalization concerning the pathology justifying the removal of the gall bladder. For instance, one authority advises a cholecystectomy in every case of inflammation because the patient makes a more prompt and uncomplicated recovery.

Another, though formerly prejudiced in favor of cholecystostomy, now prefers cholecystectomy and would make the one exception that of pancreatitis.

Still another recommends cholecystectomy in all cases unless the patient's condition is bad.

Whilst another authority, claiming an experience of 2000 cases of disease of the gall bladder and ducts, believes cholecystectomy to be the operation of choice.

These illustrations of settled opinion without a basis of pathology to justify it might be multiplied indefinitely; but the ingenious reasoning of one authority strikes us as most unique: He determines the presence of free HCl in the stomach: if it is absent he removes the gall bladder; if it is present he does a cholecystostomy.

It is obvious that these views do not represent the judgment of most of the ablest authorities on this subject; but one is astonished in reviewing the opinions of some of them, to find how loose and indefinite is their statement of the indications for cholecystectomy. Because of this indefiniteness, and because very serious results may follow the removal

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of the gall bladder where the pathology would forbid it, we should feel it worth while to consider the indications for cholecystectomy which will bear the analysis of real pathology and have justification in the end results.

The first operation for the removal of the gall bladder was done by Langenbuch in 1882.

In 1902 Moynihan in his address before the Yorkshire division of the British Medical Association on "A Series of Cases of Cholecystectomy" gave nine indications for the removal of the gall bladder. In 1909 in a contribution published in the *Annals of Surgery*, Vol. 50, page 1265, he described a pathologic condition of the mucosa, with colored illustrations, which he thought to be associated with sand-like granules of cholesterin and tarry, stringy bile, and for which he recommended cholecystectomy.

This was the condition discussed later at some length by MacCarty as strawberry gall bladder, in a paper published in the *Annals of Surgery* in 1910 entitled "The Pathology of the Gall Bladder and Some Associated Lesions"; and more recently considered in a paper on "The Frequency of Strawberry Gall Bladder" published in the same journal in February of this year.

Moynihan in later publications has added this pathologic condition as a tenth indication for cholecystectomy and MacCarty is in agreement with this conclusion.

It is obvious that the pathology in the gall bladder and ducts requiring surgery is almost wholly due to some former or some present infection. If this infection has been followed by the formation of gall stones there is usually a persistent irritation which eventually will result in destructive changes in the walls of the gall bladder and ducts. It may be a thickening of the mucosa, or an ulceration or deposit of connective tissue in the reticulum between the muscularis and mucosa. Ulceration may be local and discrete or disseminated and phlegmonous. We may find stricture and cysticus or hyperplasia and contraction; or if the empyema be acute and associated with intense œdema, shutting off the cystic arterial current, partial or complete gangrene will result. All of these conditions have been observed by surgeons of experience and there should be no doubt in one's mind as to the positive indication for cholecystectomy, with such pathology. But there are other infective conditions, which may be termed border line, involving the walls of the gall bladder and common and hepatic ducts which may, and usually do, call for a proper deliberation to consider the merits of the two procedures of drainage or excision. In a paper before this society in 1909, we reported a series of cases studied and operated for chronic cholecystitis without stone, which had thin blue gall bladders under high tension and which on pressure emptied very slowly. They were found in women who suffered from enteroptosis and it was believed that the cystic duct was too sharply angled at its emergence into the common duct to allow the gall bladder to empty freely. As a consequence the bile content was thick, tarry and ropy in consistency, and as we then believed, the mucosa, which in most of these

cases was reddened and elevated in little papillæ, was congested by the retention of stale and condensed bile. These patients were not benefited by drainage of the gall bladder, no matter how prolonged. They were improved for a time, but relapsed into the same condition of tenderness, colicky seizures, and digestive disturbances for which they had sought surgical relief.

In the belief that through angulation of the cystic duct and obstruction to the choledochus, this poor emptying of the gall bladder was brought about, we suggested in a letter to Sir Arthur Mayo-Robson, written March, 1909, doing an anastomosis between the gall bladder and duodenum, inasmuch as cholecystostomy had failed to relieve these cases. His reply was received the week after I read my paper before this society. He said: "I am well acquainted with the form of gall bladder you describe and have found it not infrequently associated with interstitial pancreatitis. In a number of these cases I have performed cholecystenterostomy with marked benefit and without recurrence of the trouble * * * I think it will be found that in most of these cases the obstruction is in the head of the pancreas and I feel sure that cholecystenterostomy is the best procedure."

In view of the later investigations of this interesting condition at the Leeds and Rochester clinics it would appear that what I was dealing with with such indifferent success by cholecystostomies was what now masquerades under the mellifluous title of "strawberry gall bladder." However, we are not disposed to concede even now an etiology essentially different from that held in our argument before this society in April, 1909. These patients are sallow, constipated, undernourished, with pendulous abdomens, drooping shoulders, cold clammy hands and feet, and suffer a gastro-intestinal complex pointing to wretched assimilation and metabolism. That the retained bile in the gall bladder and hepatic ducts is a reasonable source of focal infection, we believe there is abundant pathologic evidence, and we have an added evidence of the anatomic cause for this retention, in the relief afforded in these cases by a cholecystectomy, which removes the heavy and infected gall bladder and allows the hepatic ducts to discharge their bile freely through an unobstructed choledochus.

We may epitomize the pathologic indications for cholecystectomy under eight headings. These are not absolutely distinct entities; they are more frequently conditions of a correlated infective pathology, one condition being a sequence of another.

1. *Gangrene*: The indications for removal are of course positive. The fact that often these cases are not diagnosed until the patient is lethally toxic does not change the issue any more than it would in a gangrenous or ruptured appendix. The diagnosis should be made early, and operation be immediate.

2. *Primary Carcinoma*: The indications for cholecystectomy are here likewise positive. An early diagnosis may be difficult. A liver metastasis may be well advanced before the characteristic painless cholemia may become evident.

In Papilloma the evidences of these growths—

they are commonly multiple—may be entirely lacking until the gall bladder is opened for the removal of stone and for drainage. Occasionally they are found associated with the chronic granular condition in "strawberry gall bladder."

3. *Cysticus*: A condition due to a strictured cystic duct, which cannot be successfully treated except by removal of the large and distended gall bladder. This indication is quite as positive as in the preceding instances. It should be remembered that the stricture is most commonly due to an impacted stone which should always be looked for. The small percentage of cases due to ulceration of the cystic duct from other causes may be considered negligible, though not changing the indications for cholecystectomy.

4. *Ulceration of the Cystic Duct from Impacted Stone*: As already intimated, a long resident stone in the cystic duct usually results in ulceration and the formation of fibrous tissue. When the stone is removed and the gall bladder drained this fibrous tissue contracts and may, and usually does, terminate in an absolute stricture with the development of a cystic gall bladder. Had the gall bladder been removed instead of drained when the pathology in the cystic duct was recognized, the patient would have been spared much pain and a second operation.

Emphasis should be given to the positive indication for the removal of the gall bladder whenever a round nonfaceted stone is found fixed in the cystic duct.

5. *Empyema Without Cholangitis or Pancreatitis*: There may be some difficulty in determining that a septic gall bladder is not associated with infective extension into the ducts in the liver. The clinical evidences and the history will aid very considerably in differentiating, but if doubt exists the gall bladder should be drained and the patient informed that a second operation for removal of the gall bladder when the septic condition had abated would be necessary. There is certainly as much justification for a two stage operation here as in extreme cholemia from impacted stone in the choledochus. Both these conditions result from neglect, either from unjustifiable procrastination on the part of the patient refusing operation, or an uninformed physician who does not realize the hazard of his ignorance.

It is less difficult to diagnose the pancreas complex and obviously pancreatitis is always a contra-indication to cholecystectomy. Robson years ago proved the advantage of drainage of the gall bladder in chronic pancreatitis.

6. *Contracted Gall Bladder with Fibrous Changes in Its Walls and Destruction of the Mucosa Without Pancreatitis*: We very frequently meet with this condition. It may be due to cholelithiasis or an old empyema or a ball-valve obstruction of stone in the common duct. Pathologically, the gall bladder has become greatly thickened and may be a constant source of focal infection. At least it is a useless appendage and may become a potential menace for malignancy. Unless the pancreas has become chronically inflamed—and it may become so if the obstruction

in the common duct is near or at the ampulla—such a gall bladder should be removed.

7. *A Thickened Gall Bladder Adherent to Neighboring Organs as the Pylorus, Duodenum and Colon*: A pericholecystitis with adhesions always signifies a precedent cholecystitis from sepsis, typhoid or stone, with more or less destructive changes in the wall and lining of the gall bladder. We may free the adhesions, but if they are dense and extensive they will recur, and a cholecystectomy is the only measure which will definitely relieve the patient's digestive symptoms. There is no chronic condition of the gall bladder attended with a more disturbing complex, nor one more happily relieved by a carefully done cholecystectomy, with omental covering to all denuded surfaces.

8. *So-called Granular or Strawberry Gall Bladder (Cholecystitis Catarrhalis Chronica of MacCarty)*: We have already discussed this condition, its etiology, pathology and treatment. There is no pathology of the gall bladder, however, where the surgeon of limited experience is more likely to go wrong than in the determination of what is and what is not a granular catarrhal gall bladder. We find so many stages of this pathology that the clinical picture will in many instances be the safest guide to the choice between drainage and removal.

In conclusion, it should be remembered there are certain conditions in which cholecystectomy is distinctly contraindicated.

1. One of these is in simple cholecystitis with or without stone, where the mucosa of the gall bladder and cystic duct is substantially normal.

2. Another is in cholemia from impacted stone in the common duct. The writer years ago urged that this condition should be relieved by a two stage operation—first drainage of the gall bladder to relieve the cholemia and reduce the swelling in the choledochus and later removal of the stone. If the latter has been a long time in the duct a stricture is a possible sequel. Cholecystectomy is obviously not to be thought of here.

3. Again, in obstruction of the common duct at the Ampulla of Vater, causing the bile to back up into the pancreatic ducts, drainage of the gall bladder, instead of its removal, is plainly indicated.

4. Finally, in septic cholangitis, where drainage is the cardinal principle of treatment, cholecystostomy is clearly the operation of choice and cholecystectomy, even if eventually necessary, must be done after the septic phase has completely passed.

It may seem irrelevant here, but the more we see of infections in the right hypochondrium, in the gall bladder, hepatic and pancreatic ducts, the more deeply are we impressed with the importance of the role of the internist in preventing those vices of metabolism and elimination which lead up so directly to an acute and chronic inflammatory pathology which demands ablatory surgery.

And we should not only endeavor to prevent these pathologic complexes, but when we meet with them, we shall do well to carefully prepare our patient before operating; and after operating, follow out a consistent plan of encouraging hepatic elimination.